



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/568,260

08/11/2006

Adnan Al-Anbuky

9405-3

9679

20792 7590 05/27/2009
MYERS BIGEL SIBLEY & SAJOVEC
PO BOX 37428
RALEIGH, NC 27627

EXAMINER

BERHANU, SAMUEL

ART UNIT

PAPER NUMBER

2838

MAIL DATE

DELIVERY MODE

05/27/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/568,260	Applicant(s) AL-ANBUKY ET AL.	
	Examiner SAMUEL BERHANU	Art Unit 2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-2 and 4-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2 and 4-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 4 is objected to because of the following informalities: Claim 4 depend on a canceled claim. i.e. Claim 3. It is improper for a claim to depend on a canceled claim. For examination purpose, it is assumed that claim 4 is dependent on Claim 1. Appropriate correction is required.
2. Claims 1-9 applicant is advised to change the word "polarisation" into "polarization".

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 2838

3. Claims 1-2 and 4-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Arai et. al. (US 2003/0210056) (hereinafter Arai) in view of Lam et. al. (US 2004/0091777)(hereinafter Lam)

As to Claim 1, Arai discloses in Figure 1, and paragraph 0022, a method for determining polarisation of an electrode of a VRLA battery, the method including the steps of: allowing the battery to discharge for a selected period of time (discharge current for a predetermined time), monitoring the battery voltage during the selected period (detecting terminal voltage a predetermined time).

Arai does not disclose explicitly, detecting a first change in battery voltage and a subsequent second change in battery voltage, and associating the first change with polarisation of a negative electrode and the second change with polarisation of a positive electrode.

Lam discloses in Figures 9 and 10, measuring the cell voltage of the battery and associating the voltages with positive and negative electrodes

It would have been obvious to a person having ordinary skill in the art at the time of the invention to use positive and negative electrodes voltage variations as taught by Lam in Arai's polarization since the method of Lam enable the gassing rates to be controlled within safe limits to improve the life of lead acid batteries, Such as VRLA batteries.

As to Claim 2, Arai discloses in Figure 1, detecting the magnitude of the change in voltage to determine the polarisation of the electrode (paragraph 0031)

Art Unit: 2838

As to Claim 5, Arai discloses in Figure 1, a method as claimed in claim 1 wherein the step of discharging comprises open circuit charge leakage (paragraph 0019).

As to Claim 6, Arai discloses in Figure 1, wherein the step of discharging comprises closed circuit enforced discharging.

As to Claim 7, Arai discloses in Figure 1, wherein the step of discharging occurs as part of a current perturbation applied to the battery.

As to Claim 4, Arai in combination with Lam discloses, the polarisation of at least one electrode with an expected polarisation value or range of polarisation values to determine parameters of a float charge to be applied to the battery (see Lam's paragraph 0166).

As to Claim 8, Lam discloses in paragraph 0031, wherein the polarisation of the negative electrode is determined (see figure 9).

As to Claim 9, Lam discloses in Figures 9-10, the step of using the difference between the battery voltage prior to discharge and the polarisation detected to determine the polarisation of the other electrode (paragraphs 0031, 0035).

As to Claim 10, Arai discloses in Figures 1-5, a method of providing a float charge to a VRLA battery, the method including the steps of: allowing the battery to discharge for a selected period of time (see paragraphs 0015 and 0032 , monitoring the battery voltage during the selected period)

Arai does not disclose explicitly applying a float charge to the battery dependent on the change in battery voltage over the selected period.

Art Unit: 2838

Lam discloses in paragraph 0166 discloses applying float charge to the battery, float charge to the battery dependent on the change in battery voltage over the selected period

A to Claim 11, Lam in view of Arai in view of Finger discloses wherein the step of discharging comprises open circuit charge leakage.

A to Claim 12, Arai in view of Finger discloses step of discharging comprises closed circuit enforced discharging.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Finger in view of Bushong et. al. (US 2004/0101747) (hereinafter Bushong), and further in view of Lam

As to Claim 13, Finger discloses in Figures 1-15, a float charge to a VRLA cell (see paragraph 0017), the method including the steps of: determining the resistance (see paragraph 0015) for the cell and applying a voltage to the cell electrodes dependent on the determined equivalent resistance (see paragraph 0052).

Bushong discloses in Claim 50, charging a cell based on resistance

Lam discloses using Tafel slope to determine equivalent resistance (see Figures 9 and 10, paragraph 0164)

It would have been obvious to a person having ordinary skill in the art at the time of the invention to use Tafel method to compute resistance of the cell and charge based on cell resistance as taught by Bushong and Suzuki in Finger's apparatus in order to provide appropriate charging power to the cell to avoid cell damage due to over-charging and over-discharging.

Response to Arguments

5. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAMUEL BERHANU whose telephone number is (571)272-8430. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm Ullah can be reached on 571-272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit: 2838

/Akm Enayet Ullah/
Supervisory Patent Examiner, Art
Unit 2838

/S. B./
Examiner, Art Unit 2838